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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,236	12/01/2003	Andrew J. Curello	BIC-022	1939

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EXAMINER	
ROGERS, DAVID A	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/725,236	CURELLO ET AL.	
	Examiner	Art Unit	
	David A. Rogers	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) *3-27,37,38,41,42,44,45 and 48-52* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,28-36,39,40,43,46 and 47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20040311*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 3-27, 37, 38,41, 42,44, 45, and 48-52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10 February 2005.

Claims 1, 2, 28-36, 39, 40, 43, 46, and 47 are examined on their merits.

Specification

2. The disclosure is objected to because of the following informalities.

Page 7, line 9: delete --is--.

Page 7, line 30: delete --FIGS. 3 and 4-- and replace with --FIG. 4--.

Page 9, lines 23-25: delete everything after the comma on line 24.

Appropriate correction is required.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference item 66 (figure 1). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application.

Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1, 2, and 28-31 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by International Patent Application Publication WO 03/009410 to Peled *et al.*

Peled *et al.* discloses a fuel cell and fuel container for an electronic device comprising a sensor (gauge) for determining the level of fuel in the container at any orientation. See pages 7, 8, 20, and 21. The sensor must have a circuit, and the circuit must be in the fuel cell or the electronic device.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 32-34, 36, 39, 40, 43, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application Publication 20023/0129464 to Becerra *et al.* in view of International Patent Application Publication WO 03/009410 to Peled *et al.* and United States Patent 4,165,641 to Pomerantz *et al.*

Becerra *et al.* teaches various embodiments of fuel containers (reference items 202, 302, 502a, 502b, 602, and 702) for cooperation with fuel cells (reference item 3) for electronic devices. The fuel containers shown include a spring/plate combination (figures 2, 5A, 5B, and 7) and a foam/plate combination (figure 3). Becerra *et al.* teaches that it is desirable to know the fuel volume remaining in the fuel container (see figure 6). However, visual ascertainment of the fuel level may not always be practical since the fuel container may be enclosed within the electronic device, or the fuel itself may be clear and not easily viewable through a slot. Therefore, it would be obvious to determine the fuel remaining and display it via some other means, such as the display of the electronic device (phone, camera, computer, etc.). In fact Peled *et*

al. teaches a fuel cell and fuel container for an electronic device comprising a sensor (gauge) for determining the level of fuel in the container at any orientation. See pages 7, 8, 20, and 21. Becerra *et al.* in view of Peled *et al.* does not teach a sensor (gauge) for determining the volume using an oscillating magnetic field.

Loos teaches an eddy current position sensor. The sensing device comprises first conductor (reference item 1), a second conductor (reference item 2), a coil (reference item 3), a core element (reference item 5), and an alternating current (oscillating) measuring circuit (reference item 3). As shown in figure 7 the coil and first conductor are displaced by an amount, and the displacement is measured using the circuit.

Pomerantz *et al.* teaches a device to determine the level of liquid in a container. As taught by Pomerantz *et al.* it is known to use a sensor and an oscillatory circuit for determining the level of a liquid. See, for example, column 1, lines 23-30. In figure 4 a coil (reference item 42) is disposed relative to a container (reference item 36") to detect the level of the liquid. The sensor is connected to an oscillating circuit (see figure 1). Figures 1-3 also show various embodiments to provide a plurality of level indications for the liquid in a container.

The fuel containers for portable electronic devices, e.g., cell phones, have relatively small volumes on the order of 20 ml (4 tsp) of liquid fuel. The fuel container of Becerra *et al.*, in particular the moving wall structures, will have

relatively small displacements when used in a device such as a cell phone. As taught by Loos and Pomerantz *et al.* the eddy current sensor can be utilized to detect the small displacements. For example, the moving wall of Becerra *et al.* can be conductive (or a conductive element place on it) and the eddy current conductive element placed on the container. The moving wall would be detected by the circuit attached to the eddy current-generating conductive element. Position-to-volume indications would be normally done during calibration of the sensor.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Becerra *et al.* with the teachings of Loos and Pomerantz *et al.* to provide an oscillating circuit for determining the volume of the fuel in a fuel container of a fuel cell.

8. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra *et al.* in view of Loos and Pomerantz *et al.* as applied to claim 32 above, and further in view of "Practical Design Techniques for Sensor Signal Conditioning" to Kester.

Becerra *et al.* in view of Loos and Pomerantz *et al.* teaches sensing using an oscillating circuit. Becerra *et al.* in view of Loos and Pomerantz *et al.* does not teach the use of a Hall effect sensor.

Kester teaches that Hall effect sensors are widely known, are useful for proximity sensors and are beneficial in that they produce proportional (linear) voltage outputs when utilized. Hall sensors are known to produce a voltage

proportional to the magnetic field. See page 6.9 showing a linear output circuit (nonlinearity of 0.1% of full scale). Kester also teaches that Hall effect sensors are beneficial for contact-free sensing and for small integrated circuits.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Becerra *et al.* in view of Loos and Pomerantz *et al.* with the teachings of Kester to utilize a Hall effect sensor to produce a voltage readable by a circuit.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dar
25 March 2005

HEZRON WILLIAMS
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